

## Image Processing

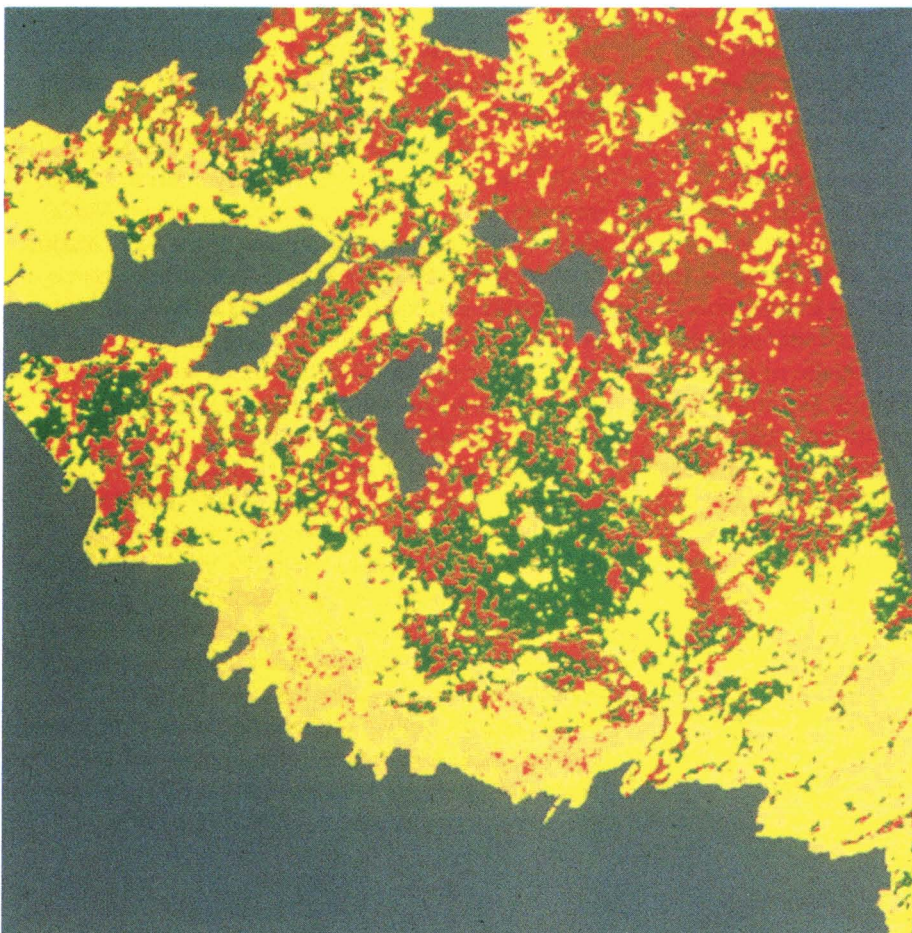
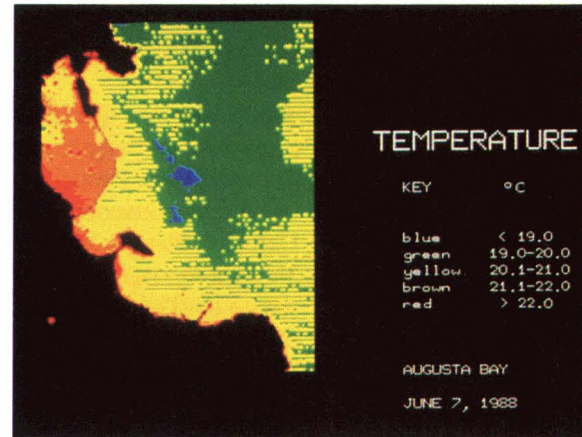
**Below** is a satellite image of Idaho's Targhee National Forest showing areas of tree mortality caused by the mountain pine beetle; red colored areas have high mortality, yellow represents moderate mortality and green low mortality. **At right** is a composite image of Augusta Bay, Sicily and a portion of the Mediterranean Sea, providing a map of water surface temperatures; the colors indicate temperature ranges: blue, under 20 degrees Centigrade, red over 22 degrees and the other colors representing one degree increments in between.

These images illustrate the use of a NASA computer program — LAS, for Land Analysis System — by the Computer Graphics Center (CGC) of North Carolina State University. CGC analyzes and manipulates raw data from the NASA-developed Landsat and French SPOT remote sensing satellites to produce useful information for land resource application projects of government and private sector organizations. The center uses LAS as its primary image processing package for interpretation of

aircraft/satellite data in combination with tabulated data collected by conventional methods.

LAS has enabled researchers to explore new techniques for improving image-based classification accuracies. The program has also been used for training graduate students, technical staff and faculty in remote sensing/image analysis. The system has proved to be sufficiently easy to use that non-professionals can become productive in a relatively short time.

Examples of the program's utility include such applications as forest inventory and management, forest decline modeling, water quality assessments,



land use/land cover inventory, groundwater contamination modeling, and wetland/wildlife habitat studies.

LAS was supplied to the Computer Graphic Center by NASA's Computer Software Management and Information Center (COSMIC)\* at the University of Georgia. COSMIC stores government-developed computer programs that can be adapted to secondary uses and makes them available to government and industry users at nominal cost as a special NASA technology utilization service.

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A NASA  
software  
system has  
enabled  
researchers  
to explore  
new  
techniques  
for  
improving  
image-based  
classification  
accuracies